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J. Nelson Wright

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CALYPSO MEDICAL / PERKINS COIE, LLP

P.O. BOX 1247

SEATTLE, WA 98111-1247

EXAMINER

WEATHERBY, ELLSWORTH

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

DETAILED ACTION

Claim Objections

1. Claims 1-15 and 32-36 are objected to because of the following informalities:
Regarding claims 1, 3-6, 8-11, 13-15 and 32-36, it is not clear what is being claimed by the term "elements". The specification, defines elements as exciting coils. However, as claimed the "elements" may refer to either a frequency or a coil. For the purposes of examination "elements" refers to frequency. Appropriate correction is required.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

3. Claims 4, 9 and 14 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. Applicant fails to clearly describe what is meant by "element have frequencies that are uniformly spaced apart". Accordingly and without a proper definition, the Examiner is forced to give the broadest reasonable interpretation to the claimed, "elements that have frequencies that are uniformly spaced apart". Therefore, as interpreted by the Examiner, "elements that have frequencies that

are uniformly spaced apart "refers to frequencies within a frequency range which do not overlap. Appropriate correction is required.

Claim Rejections - 35 USC § 102

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1, 3-5, 35 and 37 are rejected under 35 U.S.C. 102(b) as being anticipated by Paradiso et al. (USPN 6,404,340).

6. Paradiso et al. (hereinafter Paradiso) teaches locating a marker associated with a patient (col. 2, ll. 26-47), the marker having a marker resonant frequency (col. 2, ll. 47-50), the method comprising, applying an excitation at one of a set of frequencies to the marker using an excitation source (col. 4, ll. 51-53); receiving a plurality of inputs indicative of a sensed magnetic flux induced by the marker in response to the excitation (col. 3, ll. 53-57; col. 5, ll. 3-5); repeating the exciting and receiving steps across a range of frequencies (col. 4, ll. 51-58); identifying the marker resonant frequency based upon the multiple sets of plurality of inputs (col. 5, ll. 3-5); Paradiso goes on, teaching analyzing the resonance set of plurality of inputs indicative of a sensed magnetic flux to induced by the marker in response to the excitation at the marker resonant frequency and determining the location of the marker by analyzing the resonance set of plurality of

inputs (col. 2, l. 6-28; col. 4, l. 47- col. 5, l. 28). Paradiso also teaches determining the location of each marker's unique resonance frequency by sweeping through a range of frequencies (col. 5, ll. 3-5)

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

8. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

9. Claims 2 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paradiso et al. (USPN 6,404,340) in view of Blair (Pub. No. 2004/0250819).

10. Paradiso teaches all the limitations of the claimed invention except for expressly teaching initiating multiple excitations at the marker resonant frequency and averaging the resonance set of plurality of inputs over the multiple excitations.

11. In the same field of endeavor, Blair et al. '819 (hereinafter Blair) teaches initiating multiple excitations and averaging the resonance set of plurality of inputs over the multiple excitations [0073].

12. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Paradiso in view of Blair. The motivation to modify Paradiso in view of Blair would have been to increase the signal to noise ration, as taught by Blair [0073].

13. Claims 6, 8-11, 13-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paradiso et al. (USPN 6,404,340) in view of Eckstein et al. (Pub. No. 2001/0040507).

14. Paradiso teaches locating a marker associated with a patient (col. 2, ll. 26-47), the marker having a marker resonant frequency (col. 2, ll. 47-50), the method comprising, applying an excitation at one of a set of frequencies to the marker using an excitation source (col. 4, ll. 51-53); receiving a plurality of inputs indicative of a sensed magnetic flux induced by the marker in response to the excitation (col. 3, ll. 53-57; col. 5, ll. 3-5); repeating the exciting and receiving steps across a range of frequencies (col. 4, ll. 51-58); identifying the marker resonant frequency based upon the multiple sets of plurality of inputs (col. 5, ll. 3-5); Paradiso goes on, teaching analyzing the resonance set of plurality of inputs indicative of a sensed magnetic flux to induced by the marker in

response to the excitation at the marker resonant frequency and determining the location of the marker by analyzing the resonance set of plurality of inputs (col. 2, l. 6-28; col. 4, l. 47- col. 5, l. 28). Paradiso also teaches determining the location of each marker's unique resonance frequency by sweeping through a range of frequencies (col. 5, ll. 3-5).

15. Paradiso does not expressly teach using a ring time control processor.

16. In a similar field of endeavor, Eckstein et al. '507 (hereinafter Eckstein) teaches a device for detecting the presence of an article using electromagnetic signals (abstract). Eckstein goes on, teaching characterizing tags using a ring-time control processor [0039].

17. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Paradiso in view of Eckstein. The motivation to modify Paradiso in view of Eckstein would have been to accurately characterize the markers using a pre-established marker data bank, as taught by as taught by Eckstein.

18. Claims 7, 12, and 18 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paradiso et al. (USPN 6,404,340) in view of Eckstein et al. (Pub. No.: 2001/0040507) as applied to claims 6, 11 and 16 above, and further in view of Blair (Pub. No. 2004/0250819).

19. Paradiso in view of Eckstein teaches all the limitations of the claimed invention except for expressly teaching initiating multiple excitations at the marker resonant

frequency and averaging the resonance set of plurality of inputs over the multiple excitations.

20. In the same field of endeavor, Blair et al. '819 (hereinafter Blair) teaches initiating multiple excitations and averaging the resonance set of plurality of inputs over the multiple excitations [0073].

21. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Paradiso in view of Eckstein with Blair. The motivation to modify Paradiso in view of Eckstein with Blair would have been to increase the signal to noise ration, as taught by Blair [0073].

22. Claims 19-20 and 23-24, 26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paradiso et al. (USPN 6,404,340) in view of Bladen et al. (Pub. No.: 2003/0163037).

23. Paradiso teaches a system for locating a marker associated with a patient comprising: an excitation source emitting an exciting waveform during an excitation interval, the exciting waveform causing the marker to resonate (col. 4, ll. 51-53); a sensing array including a plurality of sensing coils, the sensing coils collectively outputting a plurality of inputs (col. 3, ll. 53-57; col. 5, ll. 3-5); a receiver for analyzing the plurality of inputs to remove noise from the plurality of inputs (col. 4, l. 47- col. 5, l. 28).

24. Paradiso does not expressly teach window filtering the plurality of inputs.

25. In a similar field of endeavor, Bladen et al. (hereinafter Bladen) teaches locating the position of a sensor using magnetic field (abstract). Bladen goes on, teaching windowing the sampled signal using a Blackman window and a matched filter [0042].

26. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Paradiso in view of Bladen. The motivation to modify Paradiso in view of Bladen would have been to improve the signal to noise ratio.

27. Claims 21-22, 25 and 27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paradiso et al. (USPN 6,404,340) in view of Bladen et al. (Pub. No.: 2003/0163037) as applied to claims 20 and 23 above, and further in view of Schneider (USPN 6,073,043).

28. Paradiso in view of Bladen teaches all the limitations of the claimed invention except for expressly teaching that the receiver is a coherent receiver. Paradiso in view of Bladen also does not expressly teach that the receiver identifies and corrects a phase shift from the plurality of inputs.

29. In a similar field of endeavor, Schneider teaches locating a remote object using electromagnetic generators and receivers (abstract). Schneider goes on, teaching using a coherent receiver that also identifies and corrects a phase shift from a plurality of inputs (col. 25, l. 58- col. 26, l. 5).

30. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Paradiso in view of Bladen with Schneider. The motivation to modify

Paradiso in view of Bladen with Schneider would have been to use well known signal extraction means to acquire data.

31. Claims 32-34 and 36 are rejected under 35 U.S.C. 103(a) as being unpatentable over Paradiso et al. (USPN 6,404,340) in view of Flaxl (USPN 5,491,715).

32. Paradiso teaches locating a marker associated with a patient (col. 2, ll. 26-47), the marker having a marker resonant frequency (col. 2, ll. 47-50), the method comprising, applying an excitation at one of a set of frequencies to the marker using an excitation source (col. 4, ll. 51-53); receiving a plurality of inputs indicative of a sensed magnetic flux induced by the marker in response to the excitation (col. 3, ll. 53-57; col. 5, ll. 3-5); repeating the exciting and receiving steps across a range of frequencies (col. 4, ll. 51-58); identifying the marker resonant frequency based upon the multiple sets of plurality of inputs (col. 5, ll. 3-5); Paradiso goes on, teaching analyzing the resonance set of plurality of inputs indicative of a sensed magnetic flux to induced by the marker in response to the excitation at the marker resonant frequency and determining the location of the marker by analyzing the resonance set of plurality of inputs (col. 2, l. 6-28; col. 4, l. 47- col. 5, l. 28). Paradiso also teaches determining the location of each marker's unique resonance frequency by sweeping through a range of frequencies (col. 5, ll. 3-5).

33. Paradiso does not expressly teach interpolating a frequency response based on received information and identifying the marker resonant frequency based on the interpolation.

34. Flaxl teaches an automatic antenna tuning method and circuit comprising a phase comparator that receives a powering signal and a phase correlation signal and correspondingly adjusts the resonant frequency of a resonant circuit based on the known phase relationship (abstract).

35. It would have been obvious to one of ordinary skill in the art at the time of the invention to modify Paradiso in view of Flaxl. The motivation to modify Paradiso in view of Flaxl would have been to optimize tuning, as taught by Flaxl.

Response to Arguments

1. Applicant's arguments filed 02/06/2009 have been fully considered but they are not persuasive. First, the examiner stands that applicant has not made the required corrections to claims 1-15 and 32-36 to overcome the 08/07/2008 claim objections and 112 first paragraph rejections.

2. Applicant alleges that the Paradiso reference does not disclose all of the features of claims 1, 3-5, 35 and 37. Responding to applicant's allegation that Paradiso does not teach "adjusting an excitation source to provide further excitation at the marker resonant frequency and receiving a resonance set of plurality of inputs indicative of a sensed magnetic flux induced by the marker in response to the excitation at the marker resonant frequency", the examiner disagrees. To clarify Paradiso, teaches adjusting an excitation source (col. 4, l. 51-col. 5, l. 11) to provide further excitation at the marker resonant frequency (col. 5, ll. 1-11). The examiner stands that is an express disclosure of that particular claim feature. This is especially evident in view of applicant's own

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disclosure on page 13 of the 02/06/2009, which teaches identifying a marker resonant frequency as including, for example, an iterative manner, or by choosing a frequency spacing. Applicant further alleges, that the Paradiso reference discloses a continuous wave excitation of constant amplitude and frequency. Here, the examiner directs applicant to Paradiso at (col. 5, ll. 1-45), where an excitation source is swept through the frequency range according to determine a resonant frequency of a marker, where the swept frequency is determined by the excitation source's range and the width of the marker's resonances. Applicant further alleges that the "Examiner simply notes that {paradise goes on..} but fails to identify any teaching or disclosure in Paradiso directed to adjusting the excitation source to provide further excitation at the marker resonant frequency or receiving a resonance se of inputs in response. The examiner is unable to locate any such lack of disclosure within the 08/07/2008 Non-Final Rejection. Therefore and because applicant has not set forth any further alleged deficiencies with respect to the Paradiso reference, claims 1, 3-5, 35 and 37 stand rejected. Applicant alleges that none of the secondary references correct the noted deficiencies of Paradiso. However, as stated above, Paradiso teaches all the limitations of claims 1, 3-5, 35 and 37.

Therefore, because applicant has not set forth any allegations regarding the deficiencies of the secondary claims, all dependant claims on the ground which were set forth in the 08/07/2008 Non-Final Rejection.

Conclusion

3. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to ELLSWORTH WEATHERBY whose telephone number is (571) 272-2248. The examiner can normally be reached on M-F 8:30 a.m. - 5:00 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Long Le can be reached on (571) 272-0823. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/EW/

/Long V Le/
Supervisory Patent Examiner, Art Unit 3768